

Implications for choice of policy targets for cost-effectiveness analysis

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Agenda

1. The SCC is not a cost-effectiveness measure
2. What would a c/e approach look like?
3. What should we do with the SCC we have?
 - Uses and abuses of the SCC
 - Extramural uses of the SCC
4. The economics-science disconnect
5. Where do we go from here?

1. The SCC is not a cost-effectiveness measure (1/2)

Importance of precision

- “Social cost of carbon” is not a generic term

Specific meaning: present value of the marginal damage from emitting an additional ton of GHG

- SCC doesn't incorporate the cost of achieving a goal (→ defn of cost-effectiveness)

1. The SCC is not a cost-effectiveness measure (2/2)

So what is meant by “cost-effectiveness” here?

1. Contrast with optimal control approach
 - SCC computed along BAU trajectory
2. “Letter” vs. “spirit” of cost-effectiveness
 - Use in establishing consistency
 - Derivation vs. application

Consider derivation first, then application.

2. What would a cost-effectiveness approach look like? Key issues (1/4)

Considerations for cost-effectiveness analysis:

- What target to use? (“Effectiveness” at what?)
- What other countries do matters.
- Cost estimates aren’t perfect either.

2. What would a cost-effectiveness approach look like? The UK approach (2/4)

UK uses a cost-based shadow price measure

UK experience is instructive:

- National policy target in place
- Participation in the EU ETS cap and trade program
 - Creates a policy need for a c/e approach (trading and nontrading sectors)
 - Observable signal of marginal cost (thus not entirely model-dependent)

2. What would a cost-effectiveness approach look like? Some concrete ideas (3/4)

Some concrete ideas:

- Cost-based
 - Shadow prices to achieve a “standard set” of global scenarios (e.g., 450/550/650)
 - ... to achieve a range of national targets (17%?)
- Risk-based
 - Risk management framework (defer to Roger)
 - Directly value the shift in the distribution [*]

2. What would a cost-effectiveness approach look like? Conclusions (4/4)

Common thread: Marginal analysis

These are not mutually exclusive, either with each other or with a damages-based SCC approach!

Some number better than no number, but several numbers may be better than “some number” (depending on use)

Premise of rest of talk: damages-based SCC has a role, but what should it be?

3. What should we do with the SCC we have?

Uses and abuses of the SCC (1/3)

Abuses

- As a measure of policy stringency
- As the sole input into regulatory impact analyses

Uses

- To ensure consistency across regulatory agencies (“c/e in spirit”)
- As one input into regulatory impact analyses

3. What should we do with the SCC we have?

Extramural uses of the SCC (2/3)

Interagency Working Group SCC has been used in other unrelated proceedings:

- Colorado PUC proceedings
- DC Court of Appeals cases re: EPA GHG regulations
- Cape Wind

3. What should we do with the SCC we have?

Extramural uses of the SCC (3/3)

Lessons from the “extramural” uses:

- Numbers have a life of their own
- SCC provides a valuable and concrete benchmark for uses outside federal rulemaking
- Establishes the principle that marginal damages are real and can be quantified
- \$21/ton >> \$0/ton

What are the lessons (e.g., conveying uncertainty)?

4. The economics-science disconnect

Ex post approach

“This value of the SCC doesn’t match the science”

Ex ante approach

“This input [parameter value, assumption] doesn’t match the science”

Advantages:

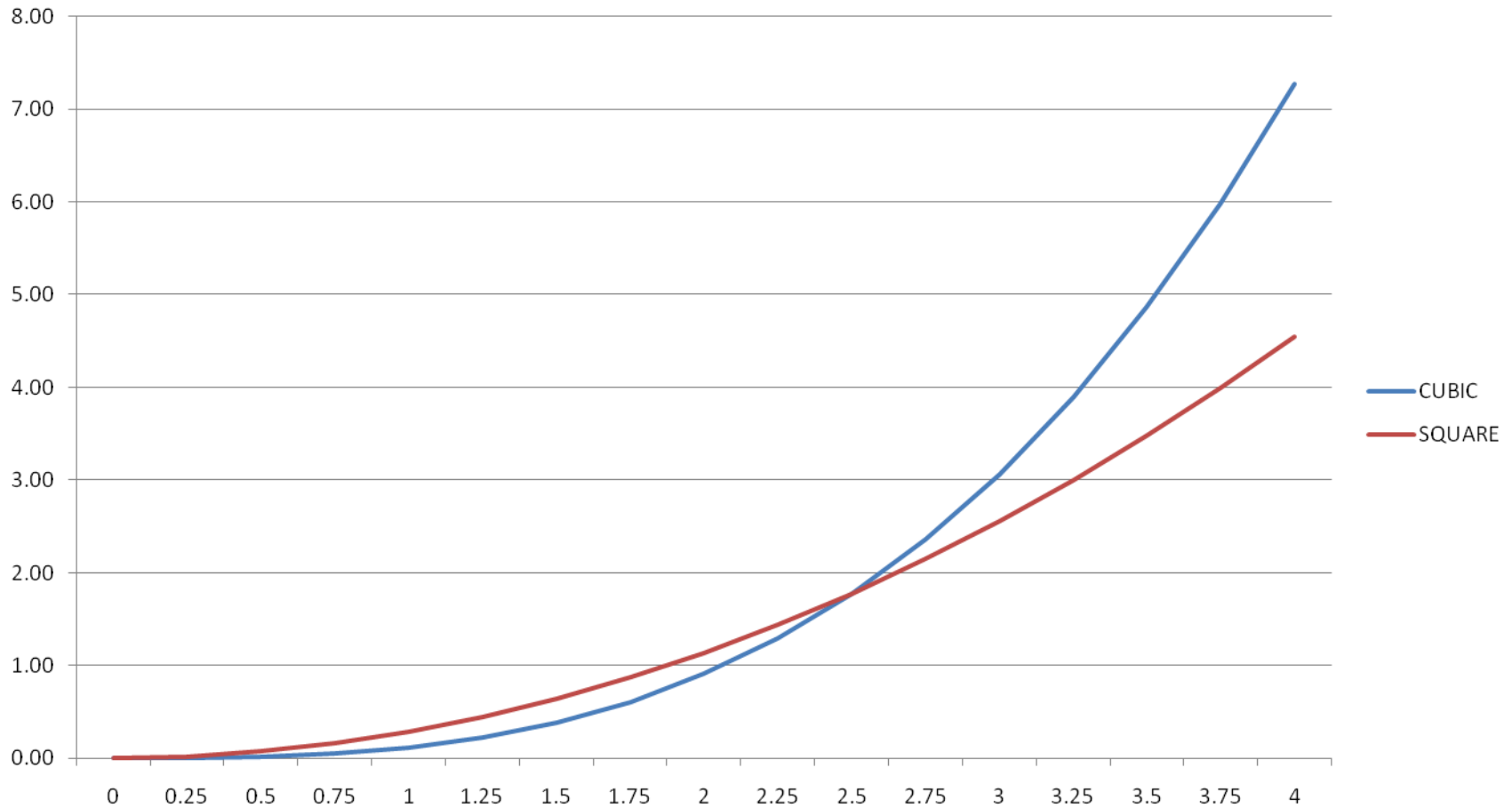
- analytic rigor
- strong foundation

Requires something of both economists and scientists.

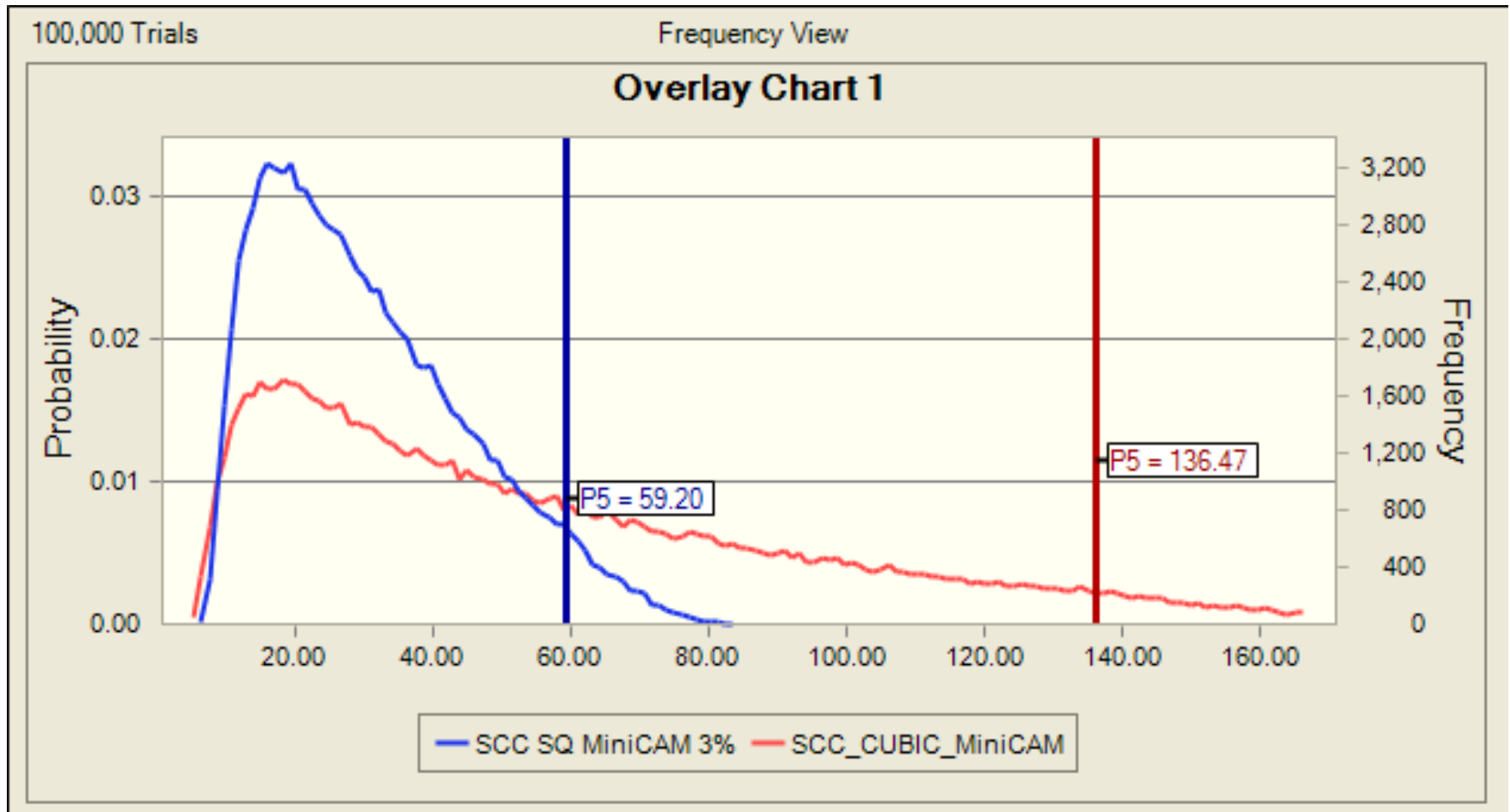
5. Where do we go from here?

- How will the results of this workshop be incorporated into a process going forward?

An aside: Which damage function? (1/2)



An aside: Which damage function? (2/2)



(Mean, Median, 95th %ile): (\$30,28,59) (\$56,46,136)